

# **Demystifying GIS in California PSAPs**

Presented by

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# Agenda

- What is GIS
- Using the ALI Data (map examples)
- GIS 9-1-1 Program Funding
- GIS Spending Plan
- GIS Checklist
- GIS References
- Q&A

# What is GIS?



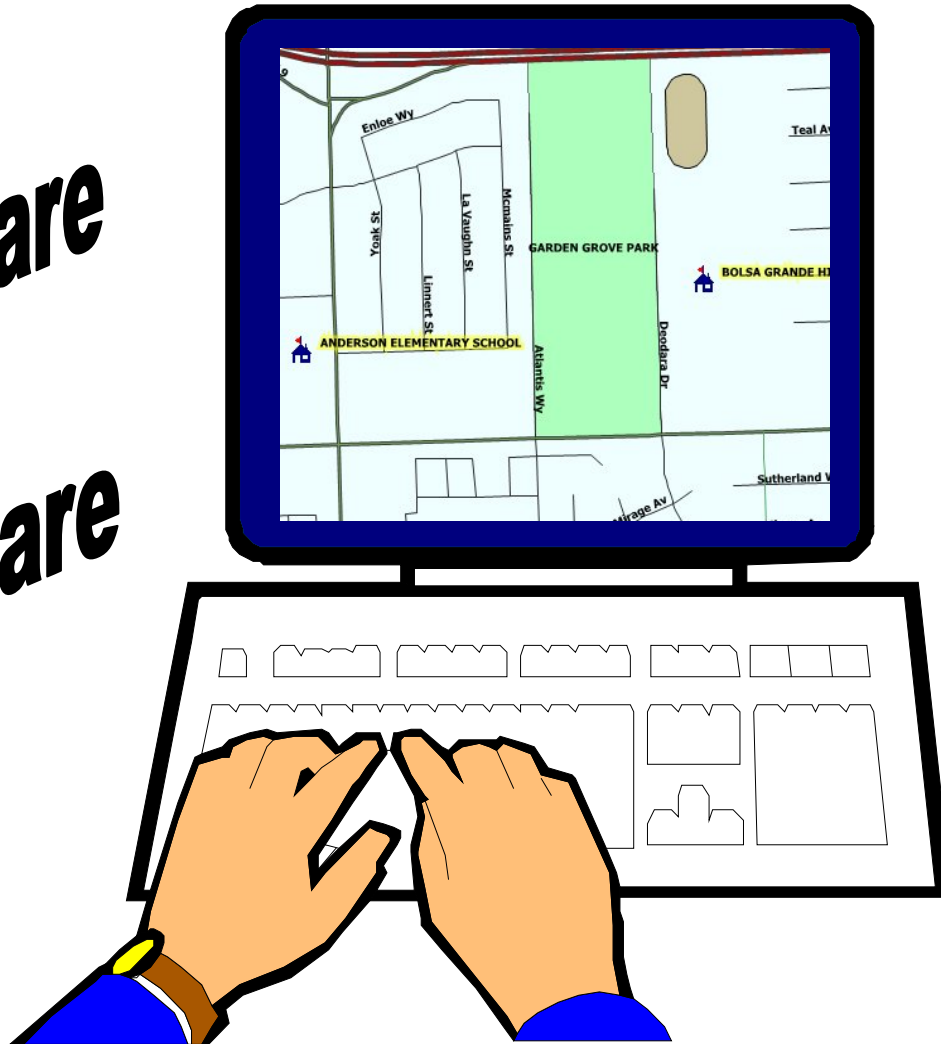
## **Geographical Information System**

Organized collection of: computer hardware, software, electronic geographic data and personnel to capture, store, update, manipulate, analyze, and display all forms of geographically referenced information.

# GIS All Together

**Hardware**

**Software**



**Geo Data Sets**

**People**

# Why GIS Now?

- GIS budgeted under Wireless E9-1-1 Project
- Wireless ALI data now available
  - Format 04 wireless display (data stream sent to PSAP)
  - Wireless Service Providers identify caller's locations by latitude and longitude coordinates (Ex., 37.982468 , -118.859575)
  - WSP W-ALI Matrix (minor variances of Uncertainty and Confidence fields)
  - Also use wire-line address fields for location of caller

# FCC 94-102/Wireless E9-1-1

- Requires Wireless Carriers To Deliver:
  - Phase I – Provides Cell Sector ID and Callback Number (CBN)
  - Phase II – Adds More Precise Location
  - Implementations moving quickly throughout State (Phase I and II)
  - GIS needed to interpret lat./long. Phase II location of callers

# Using the ALI Data (Format 04)

COMMUNITY NAME

CALLBACK NUMBER

CELL SITE NUMBER ADDRESS

CELL SITE STREET NAME

MILITARY TIME

STATE

WIRELESS ESN

CLASS OF SERVICE  
"WPH2" FOR PHASE II  
"W911" FOR PHASE I

DATE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
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15	M	E	T	E	R	S		1	4											P	E	R	C	E	N	T		0	9	5		

NENA ID

PHASE I MAPID

UNCERTAINTY FACTOR  
(IN METERS)

LATITUDE COORDINATE

CELL SECTOR  
DIRECTIONAL

WSP & 24/7 TEL #

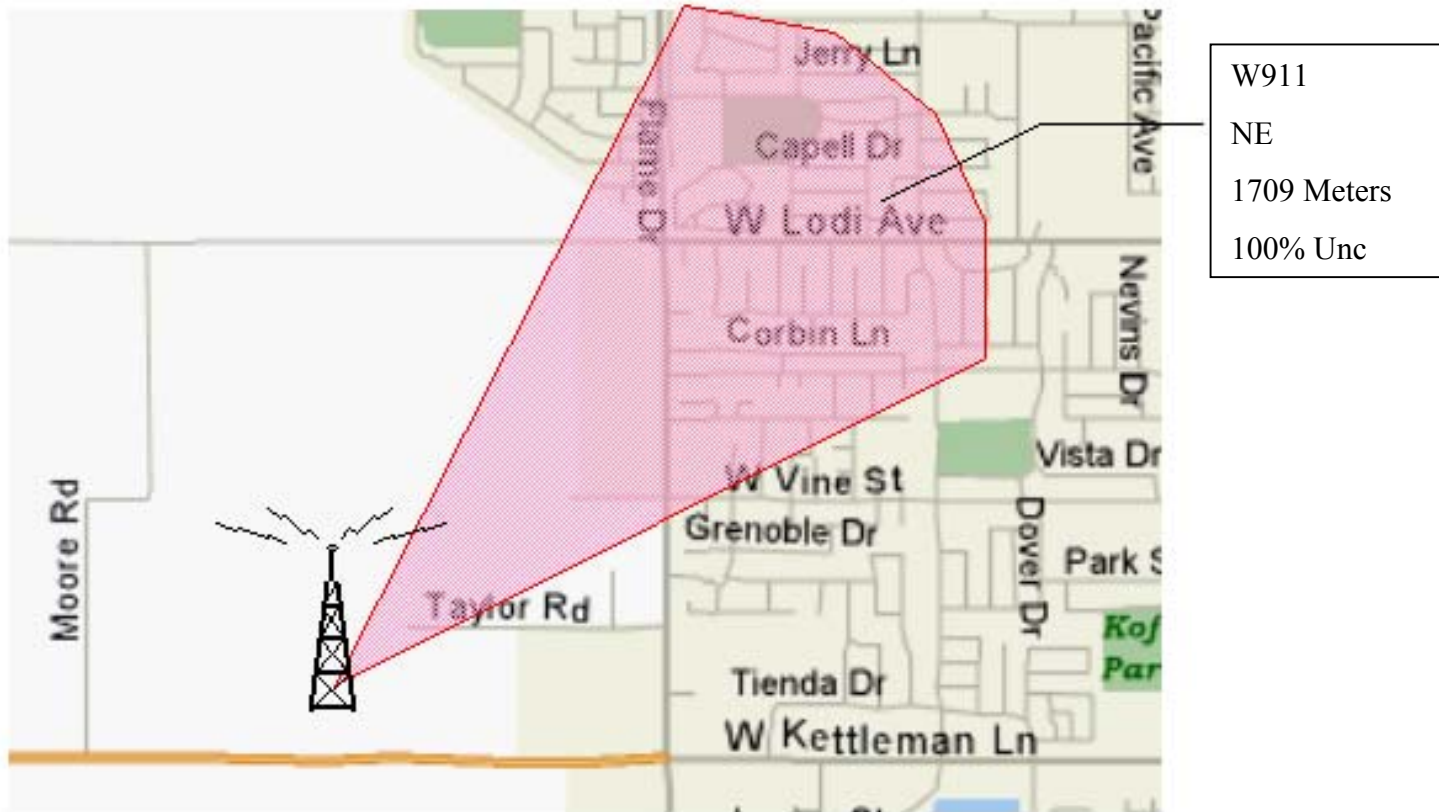
ELI/TELLIALES FIELDS

LONGITUDE COORDINATE

CONFIDENCE FACTOR  
(IN PERCENT)

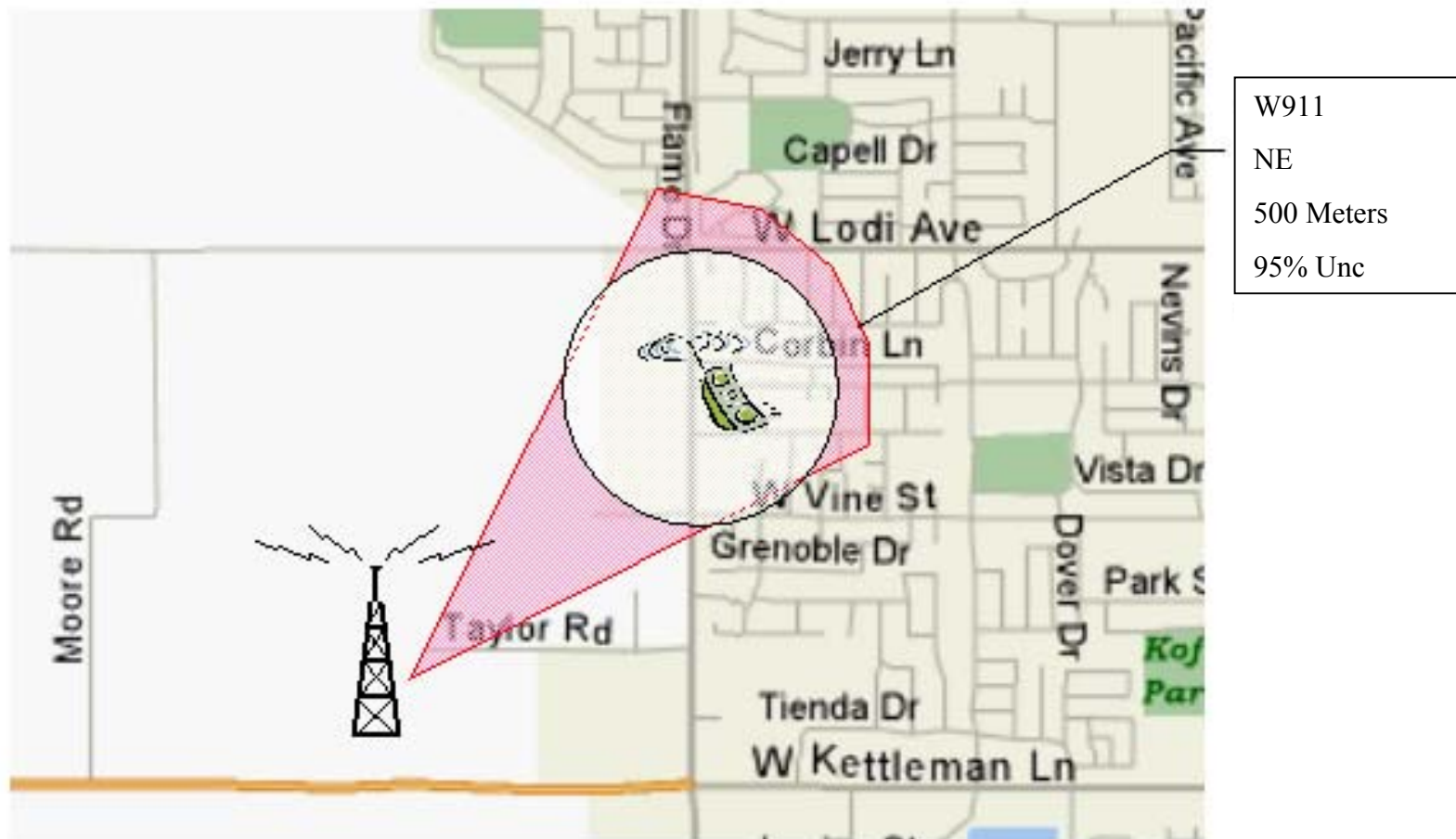
P-ANI

# ALI Data - Phase I Wireless

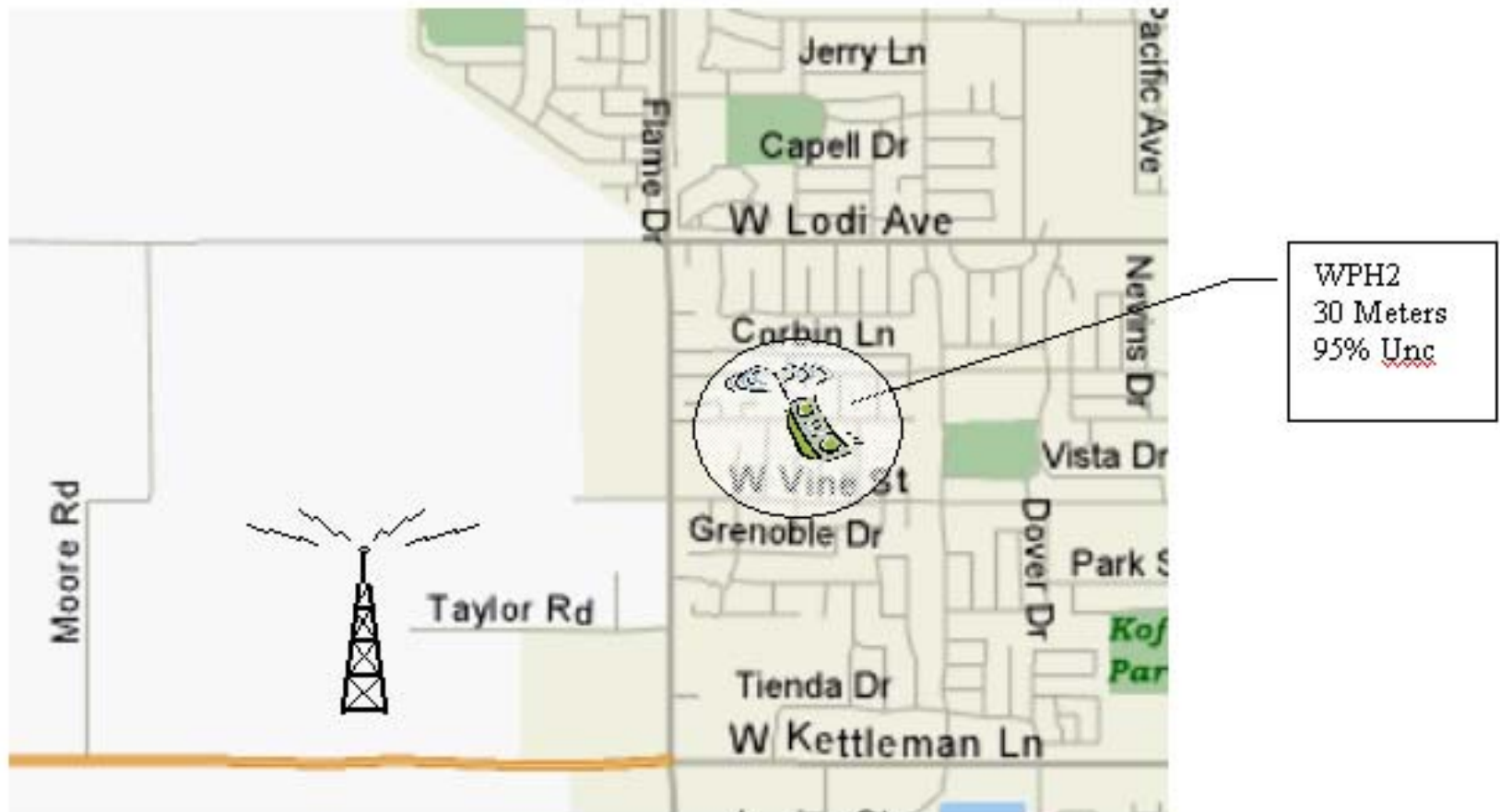




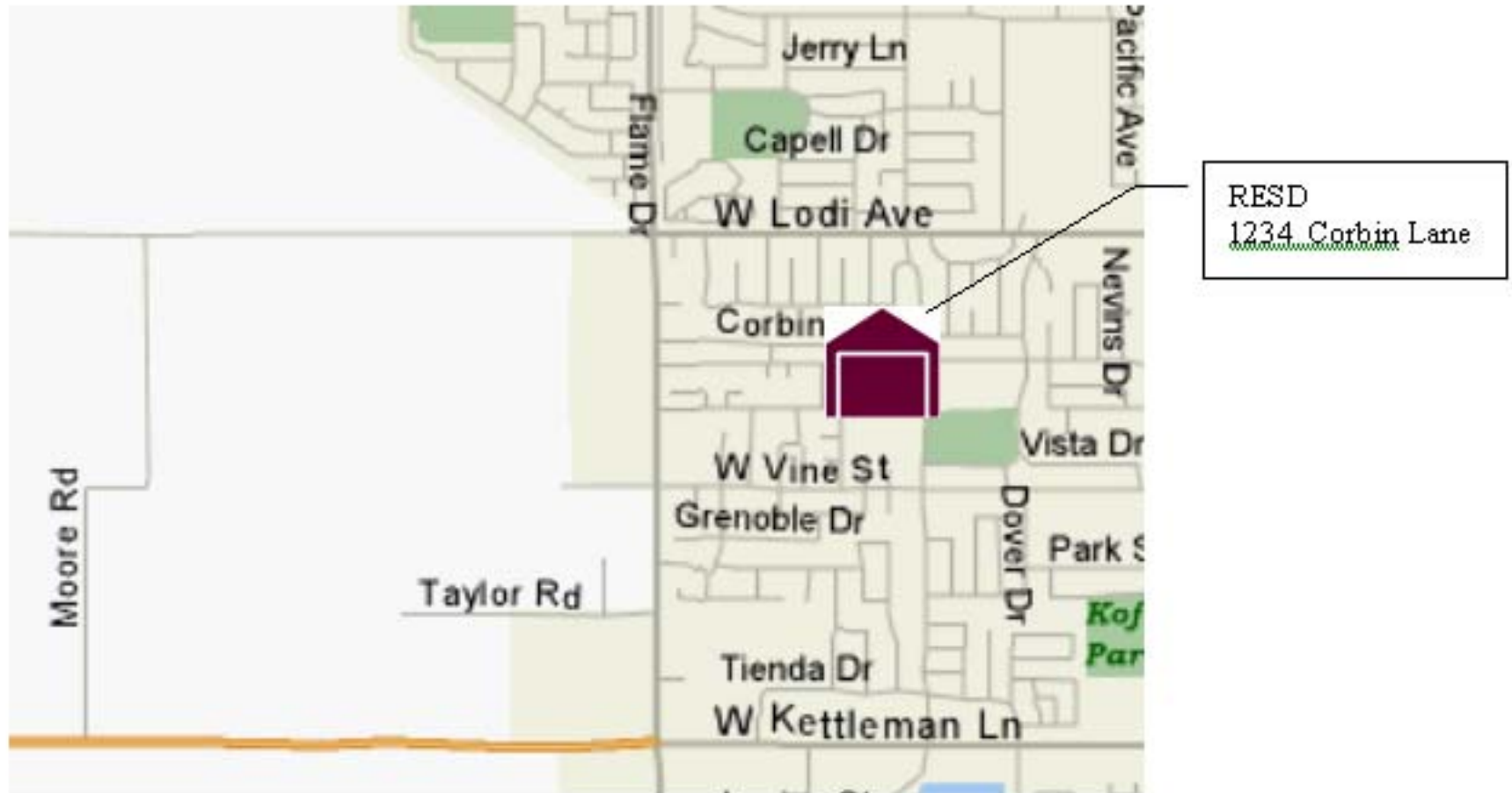
# ALI Data - Phase I + Centroid



# ALI Data – Phase II with Lat./Long.



# ALI Data - Wireline with Address



# GIS 9-1-1 Program Funding

- Most PSAPs qualify for a one-time allotment, based on their 9-1-1 call volume
  - \$15,000 per State qualifying position
- Primary PSAPs must be a “participant” in the wireless project
  - PSAPs who submitted their letter of agency and are ready to field wireless calls directly
  - All Secondary PSAPs qualify for GIS
- GIS Funding Level obtained from 9-1-1 Office
- Contact 9-1-1 Office Consultant

# GIS Spending Plan

- Designed to ensure a well thought-out, complete plan, listing all elements within the PSAP's budget
  - Identify Budget
  - Use and follow 9-question checklist
  - Identify all costs
  - Provide explanation for each element
  - Consolidate into a GIS Plan
  - Submit to 9-1-1 Office Consultant

# GIS Checklist

- 1) Map Dataset Creation/Acquisition
- 2) Map Data Maintenance
- 3) Software
- 4) Computer / Hardware
- 5) Integration
- 6) Training
- 7) Acceptance Testing
- 8) Timeline
- 9) Summary

# Checklist - Item #1

**Have you identified source(s) of all GIS map datasets to be used in PSAP for E9-1-1 purposes?**

Describe and identify in the GIS spending plan the source and costs associated with all GIS map datasets to be used for 9-1-1 related purposes. This includes the initial acquisition cost of the GIS map data plus any other costs to be incurred as a result of enhancing the GIS map data to meet PSAP needs.

# Item #1 Map Data Info

- Understand your needs for accuracy
  - Spatial Accuracy
  - Attribute Accuracy
  - Concurrency
- Can be used for wireless and wire-line calls
  - Addresses for wire-line callers
  - Latitude/Longitude for wireless callers



# Checklist - Item #2

**Have you identified the level of map dataset maintenance that will be required?**

Describe and identify cost of maintaining GIS map datasets used in PSAP.

## Item #2 Map Maintenance

- The accuracy of a PSAP's datasets will depend on the system used to keep the data current
- Who will do this task? (Will this be done inside or outside of PSAP?)
- What are the long-term implications of maintaining the map data?
- Identify cost

# Checklist - Item #3

**Have you identified map-reader software and/or other GIS software applications to be used in the PSAP?**

Describe and identify all associated map dataset display/process software applications for call takers and identify cost.

## Item #3 GIS Software

- Map Reader Software allows user to see, pan, and zoom map datasets
- Will you be acquiring other related software?
  - Dataset Builder
  - MSAG Reconciliation
- Identify cost

## Checklist - Item #4

**Have you determined the computer system to be used? Are hardware/ software upgrades required for GIS?**

Identify and describe the computer system to be used for GIS applications and any associated costs that will be incurred as a result of adding hardware or software to this computer system. The cost of maintaining this hardware and software over time should be considered as well.

## Item #4 Computer Info

- Where will the application reside?
  - CAD or 9-1-1 System IWS, Server, or other
- What equipment will need to be procured to have the GIS application run efficiently?
- Determine Computer Platform compatibility
  - 9-1-1 System, CAD, or other
- PSAPs must determine needed equipment upgrades
  - More memory, storage, larger monitors, new system
- Identify cost

# Checklist - Item #5

**Have you determined how the mapping system will interface to the E9-1-1 system?**

Identify and describe the interface used to deliver E9-1-1 ANI and ALI data elements from the 9-1-1 system to the GIS (mapping system) and incorporate the new elements of Class of Service (CoS), Cell Directional, Latitude, Longitude, Uncertainty, and Confidence.

# Item #5 ALI Interface

- Which data do you want the GIS to translate?
- Identify cost

COMMUNITY NAME				CELL SITE NUMBER ADDRESS								MILITARY TIME				WIRELESS ESN				CLASS OF SERVICE "W911" FOR PHASE II "W911" FOR PHASE I				DATE								
CALLBACK NUMBER				CELL SITE STREET NAME								STATE																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
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15	M	E	T	E	R	S		1	4											P	E	R	C	E	N	T		0	9	5		

COMMUNITY NAME

CELL SITE NUMBER ADDRESS

MILITARY TIME

WIRELESS ESN

CLASS OF SERVICE  
"W911" FOR PHASE II  
"W911" FOR PHASE I

DATE

CALLBACK NUMBER

CELL SITE STREET NAME

STATE

PHASE 1 MAPID

UNCERTAINTY FACTOR  
(IN METERS)

CELL SECTOR  
DIRECTIONAL

WSP & 24/7 TEL #

LONGITUDE COORDINATE

CONFIDENCE FACTOR  
(IN PERCENT)

ELI/ELLTALS FIELDS

LANE ID

PART



# Checklist - Item #6

**Have you determined what kind of GIS training will be needed for 9-1-1 call takers/others?**

Identify and describe any GIS training that will be needed by call takers and others.

# Item #6 Training Info

- Who will train users and administrators?
- Update standard operating procedures
- Trouble resolution process
- Identify cost

# Checklist - Item #7

**Do you have an acceptance test plan (ATP) for the GIS?**

Identify and describe the acceptance test plan (ATP) to be used before full payment is rendered to the GIS contractor.

## Item #7 Acceptance Test Info

- Require contractor to prove system works
- GIS should work for all WSPs, wire-line, and other types of calls
- Will you test for accuracy?

# Checklist - Item #8

**Have you determined a timeline for the GIS implementation?**

PSAPs should identify the timeline for all aspects of their GIS project implementation.

## Item #8 Timeline

- Define the timeline
- Different elements can be procured at different times
- A timeline of each cost element should be identified

# Checklist - Item #9

**Have you described all GIS elements with their respective costs and list each requested reimbursement item in the GIS Spending Plan Summary Sheet?**

Itemize all GIS cost elements. Specify the ones that will be requested for reimbursement from the State 9-1-1 Office. Complete the GIS checklist and provide detail for each of the checklist items.

# Item #9 Summary Info

- Put the plan in writing!
- Document elements and cost in Summary Table
- Ensure total cost is within budget
- Summary Table includes:
  - Item for each question on checklist
  - Provider of item/service
  - Implementation timeline for each item/service.
  - Total cost in each category
  - Available GIS funding



# GIS References

[www.td.dgs.ca.gov/services/911](http://www.td.dgs.ca.gov/services/911)

[www.calgis.org](http://www.calgis.org)

[www.usgs.gov](http://www.usgs.gov)

[www.mapinfo.com](http://www.mapinfo.com)

[www.esri.com](http://www.esri.com)

[www.gis.com](http://www.gis.com)

<http://geography.usgs.gov/www/partners/>

# In Closing...

- Get your arms around GIS and embrace resources.



- Using the checklist will:
  - Assure that most elements in your GIS are addressed
  - Help to make your GIS system complete
  - Complete the GIS Spending Plan